

FACT SHEET

Connecticut Department of Public Health
Environmental & Occupational Health Assessment Program,
Division of Environmental Health
410 Capitol Avenue MS# 11EOH, PO Box 340308
Hartford, CT 06134-0308
(860) 509-7742

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Questions & Answers for Region 5 School District

Asbestos

What is Asbestos?

The term asbestos refers to a group of six different fibrous minerals (amosite, chrysotile, crocidolite, tremolite, actinolite, and anthophyllite). These are minerals that occur naturally in the environment. Asbestos has been used in a wide range of manufactured goods, mostly in building materials (roofing shingles, ceiling and floor tiles, thermal insulation materials, paper products, and asbestos cement products), friction products (automobile clutch, brake, and transmission parts), heat-resistant fabrics, packaging, gaskets, and coatings. Some vermiculite or talc products may contain asbestos as a contaminant.



What Happens to Asbestos When it Enters the Environment?

Asbestos fibers can enter the air from the breakdown of natural deposits and manufactured asbestos products. Small fibers and particles may remain suspended in the air for a long time and may be carried long distances by wind or water before settling on surfaces.

How Can Children & Adults be Exposed?

We are all exposed to some asbestos everyday in the air that we breathe. Asbestos minerals are widespread in the environment. The breakdown of manufactured products including automotive brakes and building materials add to the background exposure. Background is a term used to describe what exposures might occur in the absence of significant sources of contamination. Indoor air background exposures are generally higher than outdoors. A review of published studies found average air levels in public buildings including schools to be considerably higher than those found outdoors.

People working in industries that make or use asbestos products or who are involved in asbestos mining may be exposed to high levels of asbestos. People living near these industries may also be exposed to high levels of asbestos in air.

Asbestos fibers may be released into the air by the disturbance of asbestos-containing material during product use, demolition work, building or home maintenance, repair, and remodeling. In general, exposure may occur only when the asbestos-containing material is disturbed in some way to release particles and fibers into the air.

How Can Asbestos Affect a Person's Health?

Breathing asbestos fibers at levels found in schools with asbestos-containing material, would not be expected to cause any acute symptoms or diseases such as asthma. In addition, there is not a medical test that can indicate whether one has been exposed to asbestos at the levels measured at the school. A chest X-ray is only recommended for people exposed to very high levels of asbestos for a long time. Asbestos mainly affects the lungs and the membrane that surrounds the lungs. Breathing high levels of asbestos fibers for a long time may result in scar-like tissue in the lungs and in the pleural membrane (lining) that surrounds the lung. This disease is called asbestosis and is usually found in workers exposed to asbestos, but not in the general public. People with asbestosis have difficulty breathing, often a cough, and in severe cases heart enlargement. Asbestosis is a serious disease and can eventually lead to disability and death.

It is known that breathing high levels of asbestos can increase the risk of cancer in people. Studies of workers exposed to high levels, usually for long periods of time, indicate that two types of cancer are caused by exposure to asbestos: lung cancer and mesothelioma. Mesothelioma is a very rare cancer of the thin lining surrounding the lung (pleural membrane) or abdominal cavity (the peritoneum). Cancer from asbestos does not develop immediately, but shows up after a number of years (20-40). Studies of workers also suggest that breathing asbestos can increase chances of getting cancer in other parts of the body (stomach, intestines, esophagus, pancreas, and kidneys), but this is less certain.



The risk of developing cancer from asbestos exposure to occupants of buildings with asbestos containing material cannot be estimated with confidence. Risks are estimated for low level exposures using a conservative (protective of public health) process called risk assessment. For example, highly exposed asbestos workers have a lifetime cancer risk of about 1 in 10. Average risk to students in schools with known asbestos-containing material is about 6 per million people exposed. These risk estimates are fairly uncertain and assume exposure to certain fiber types and sizes likely to cause cancer. The actual cancer risk in fact may be much lower. Experimental studies show a clear increase in cancer risk with longer fibers. Most risk estimates are based on exposures to fibers greater than 5 micrometers ($5\ \mu\text{m}$). Fibers less than $5\ \mu\text{m}$ are likely to have less risk than larger fibers. Although there is no clear correlation between asbestos levels in air and levels in dust, it is important to note that most of the fibers found in recent dust samples in the Amity Regional Junior High School Bethany Campus are mostly in the small size class of less than $5\ \mu\text{m}$.

Cigarette smoke and asbestos together significantly increase your chances of getting lung cancer. Therefore, if you have been exposed to asbestos you should stop smoking. This may be the most important action that you can take to improve your health and decrease your risk of cancer.

Why Did The School Test For Asbestos In The First Place?

An asbestos consultant licensed by the Department of Public Health conducted air sampling on behalf of Regional School District #5 on May 26, 2004. James Raffin of AMC Technology, Inc. collected air samples within Amity Junior High Schools (Bethany and Orange campuses) following their receipt of the results of micro-vacuum dust sampling. Vernon Rohde of S&B Environmental, LLC, performed this sampling of settled dust on May 20, 2004. Mr. Rohde is also licensed as an asbestos consultant by the Department of Public Health. Mr. Rohde was reportedly hired by a private citizen to address concerns regarding asbestos in the schools.

What Levels of Asbestos Have Been Found and Where?

Mr. Rohde collected samples of settled dust in the Amity Junior High School Bethany campus using the method referred to as the ASTM D 5755-95 "Standard Test Method for Microvacuum Sampling and Indirect Analysis of Dust by Transmission Electron Microscopy for Asbestos Structure Number Concentrations" from five areas at the Amity Junior High School in Bethany. A total of six samples were collected and analyzed. Analysis of these dust samples indicated the presence of asbestos in the following areas: room 16, the health room, room 14, and the boys locker room. The table below summarizes the results of samples collected by Mr. Rodhe. The results are reported in asbestos structures per centimeter squared (s/cm²).

* (NSD means no structures detected)

	<i>s/cm²</i>	<i>location of sample collected</i>
room 16	85,000	carpet under radiator
room 16	NSD	top of speaker
health room	70,000	top of cabinet
room 14	8,560	carpet by door
boys locker room	4,280	top of locker BL 135
room 1	NSD	carpet by door

Mr. Raffin collected a total of 23 air samples in the Amity Junior High Schools (Bethany and Orange campuses). The samples were collected at the end of the school day. All 23 samples were below limits of detection. Twelve air samples were collected in Bethany, including two each in room 16 and the health room. Eleven samples were collected in Orange. All air samples were analyzed using Transmission Electron Microscopy (TEM). This method of analysis permits the identification of very small asbestos fibers and can distinguish asbestos fibers from other non-asbestos fibers. Sampling areas were chosen where higher than expected concentrations of asbestos in settled dust were identified, in areas where damaged floor tile had previously been removed or where damaged tiles were identified. The following page summarizes the air sample locations within each school:

Bethany Campus:

custodial room	classroom 16 (2)	classroom 4	classroom 12	woodshop
boiler room	classroom 43 (2)	classroom 14	classroom 32	

Orange Campus:

custodial room	boys locker room	gym corridor	lower level rm 57	classroom 13
boiler room	girls locker room	East café	classroom 12	classroom 14
classroom 15	woodshop			

Mr. Raffin collected a total of 102 bulk samples of building materials suspected of containing asbestos in the Amity Junior High Schools (Bethany and Orange campuses). A total of 71 samples were collected in Bethany and 31 samples in Orange. The following table summarizes the materials identified as asbestos-containing and their locations: (note: An asbestos-containing material is defined by regulation as a material that contains >1% asbestos).

Bethany Campus:

<u>Location</u>	<u>Material</u>	<u>% Asbestos/Type*</u>	<u># Of Samples Collected</u>
<u>Boiler room</u> (Boiler #2)	rib rope	60% chrysotile	3 collected, 1 analyzed
	window caulking	2.25% (2% chrysotile<1% anthophyllite)	2 collected, one analyzed
<u>Classroom 43</u>	sink undercoating, window caulking,	5% chrysotile 3.1% asbestos (3% chrysotile, <1% anthophyllite)	3 collected, 1 analyzed

* Chrysotile and Anthophyllite are specific types of asbestos regulated by the Environmental Protection Agency

Orange Campus:

Boiler room

<u>Material</u>	<u>% Asbestos</u>	<u># Of Samples Collected</u>
boiler #3/jacket insulation	60% chrysotile	3 collected, 1 analyzed
boiler packing between ribs	60% chrysotile	3 collected, 1 analyzed
debris between boilers #1 on floor	25% chrysotile	3 collected, 1 analyzed



What Do The Sample Results Mean?

Public health concern regarding exposure to asbestos is primarily related to the inhalation of asbestos fibers. The results of air sampling conducted within Amity Junior High School (Bethany and Orange campuses) do not indicate an airborne exposure concern. All air samples taken in both schools contained no measurable levels of airborne asbestos.

Micro-vacuum dust sampling is a means of quantitatively determining whether asbestos is present in settled dust. The ASTM dust method provides no direct correlation between the results from micro-vacuum dust sampling and air sampling. At present, there is no broad scientific agreement on the relationship between asbestos in settled dust and whether it is in the air or at what level. The ASTM method does not describe evaluation techniques that can be used to interpret the safety of schools or other buildings with asbestos identified in settled dust. There is no established regulatory standard for asbestos in settled dust.

The DPH has requested the US Environmental Protection Agency and the Agency for Toxic Substances and Disease Registry (part of the Centers for Disease Control) to give further consideration to the issue of asbestos in settled dust as a means of assessing potential exposure to asbestos. As new scientific information becomes available, public policies concerning the use of micro-vacuum sampling data as a means of assessment may change. Presently, air sampling is the best means of directly measuring such potential exposure.

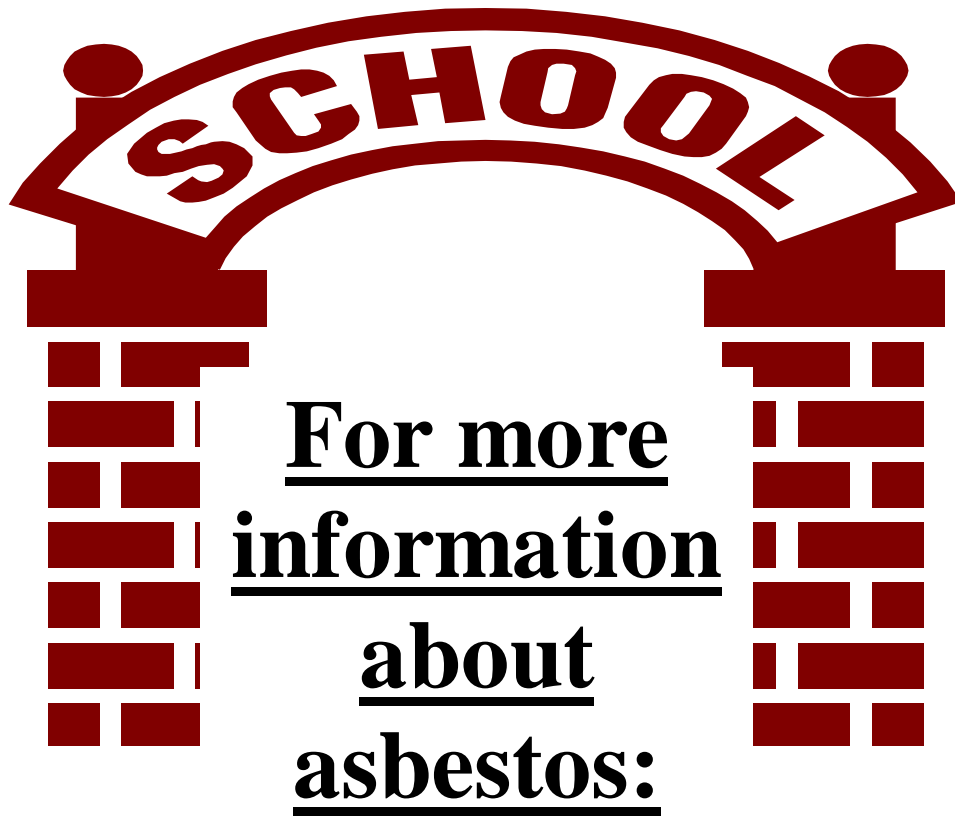
What Has Been and Will Be Done To Address the Asbestos Concern In Regional District #5?

A licensed asbestos contractor, Inco Group, Inc., of West Haven, CT, has cleaned the boiler room of the Orange campus. This activity was performed on the weekend of May 28-29, 2004. All debris in the boiler room was removed as part of this action.

Based upon the results of the micro-vacuum sampling, classroom 16 and the health room in Bethany were closed on May 25, 2004. Those rooms remain closed pending cleaning by an asbestos contractor licensed by the Department of Public Health. This cleaning process will be completed after the end of the current school year.

A licensed asbestos consultant is developing a work plan to wet wipe and vacuum all classroom areas of both campuses. This work will be taking place as soon as the Superintendent and the consultant agree upon the plan, and the persons conducting the work are trained to conduct the work in a uniform manner. This work will be performed by custodial and maintenance personnel employed by the school system. The appropriateness and effectiveness of this cleaning process will be evaluated and documented by additional air sampling within the schools.

The DPH is currently conducting an audit of the asbestos management plans for each of the schools in Regional School District #5. In accordance with DPH regulations, the school system is required to maintain and routinely update a plan for managing asbestos-containing materials identified within each school. The DPH audit is intended to determine whether the school system is in compliance with these regulations. The Superintendent and Chair of the Board of Education will be advised in writing of the outcome of that audit once it has been completed.



Connecticut Department of Public Health

? Asbestos Unit (*Regulatory Questions*)
(860) 509-7367

? Environmental & Occupational Health
Assessment Program (*Health Effects Questions*)
(860) 509-7742

<http://www.dph.state.ct.us/>

